

REMARKS

As noted previously, the Applicant appreciates the Examiner's thorough examination of the subject application.

Claims 1-11 and 21-30 are pending in the application and were rejected in the final Office Action mailed 17 September 2008 on various statutory grounds, described in further detail below. Claims 1 and 21 are amended by this paper. No new matter has been added.

Applicant requests reconsideration and further examination of the subject application in light of the following remarks.

Summary of interviews pursuant to 37 CFR § 1.133

On 23 October 2008 Examiner Zervigon and Applicant's attorney, G. Matthew McCloskey, held a first interview and discussed claim 1 and the pulse-shot principle of Nawata and further that Ohmi teaches a valve response time. A second interview was scheduled for 28 October 2008. Further, on 28 October 2008, Examiner Zervigon and Applicant's attorney, G. Matthew McCloskey, held a second interview and discussed claim 1 and the pulse-shot principle of Nawata and the response time taught by Ohmi.

To clarify a difference over the Nawata reference, the Examiner suggested that claim 1 be amended to read that the controller calculates mass flow "when the second valve is open" (as opposed to "as" the second valve is open). The criticality of this limitation was discussed, and the Examiner suggested that one of the inventors submit an Affidavit under 37 CFR § 1.132 to further explain the criticality of the limitation and the superior results provided relative to the teachings of Nawata.

Applicant notes that claims 1 and 21 have been amended in accordance with the Examiner's suggestions. Further, it is noted that an Affidavit under 37 CFR § 1.132 by inventor W. Randolph Clark is submitted with this paper.

Claim Rejections – 35 U.S.C. § 103

Concerning items 1-2 of the Office Action, claims 1-11 and 21-30 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Publication No. U.S. 2004/0244837 to Nawata et al. (“Nawata”) in view of U.S. Patent No. 6,193,212 to Ohmi et al. (“Ohmi”). Applicant respectfully traverses the rejection and requests reconsideration for the following reasons.

Two requirements necessary for a rejection under 35 U.S.C. § 103(a) are missing in this situation. Specifically, the cited reference do not teach each and every limitation of the claims at issue, and proper motivation does not exist to combine or modify the teachings of the references in the way the Examiner has proposed.

(i) Prior Art Fails to Teach All Limitations of Claims

A conclusion of obviousness requires that the reference(s) relied upon be enabling in that it/they put the public in possession of the claimed invention. This is not the case here, as will be explained. In particular, the cited references fail to teach or suggest calculating mass flow when the outlet valve is open and as gas is exiting the open outlet valve.

The system of amended claim 1 (representative of the independent claims pending in the application) includes a first (inlet) and a second (outlet) valve and a pressure transducer/sensor that are connected to a chamber and to a controller. The controller is configured and arranged to control the operation of the valves so that a precise mass of a gas can be delivered through the second valve. Of particular note, Applicant’s controller continuously monitors pressure and temperature of the gas within the chamber, and calculates the actual mass delivered by Applicant’s system while (“when”) the outlet valve is open and delivering gas, thereafter closing the outlet valve at the precise time that a mass flow set point is calculated as having been reached, wherein the time is from about 100 milliseconds to about 500 milliseconds

Nawata is cited as the primary reference for the rejection. Nawata teaches a pulse shot regulator and pulse shot regulating method. The system and method of Nawata utilize an inlet valve,

a volume, an outlet valve, pressure measurement, temperature measurement, and an overall controller. The system and method of Nawata, however, measure the volume flow Q of gas exhausted from a cutoff valve based on a difference in pressures within a delivery chamber after the inlet valve is closed, and again after the outlet valve is closed, i.e., at the beginning and end of the delivery process. *See* Nawata, paragraph [0060].

Importantly, if the mass in the gas flow delivered by the Nawata system is insufficient for required purposes, the only recourse is to correct the error by a subsequent delivery process (pulse shot) as the Nawata system does not measure actual mass delivered by the system when the outlet valve is in an open condition.

Moreover, Nawata in fact teaches that when “the filling/exhaust cycle becomes shorter,” which Nawata references as a period of less than one second, “it is useless to measure the pressure during the period.” Nawata, paragraphs [0097]-[0098]. Additionally, on this point, Nawata even more resolutely teaches that in “the case of making pulse shots at high frequency, however, high-precision flow management cannot be performed.” Nawata, paragraph [0099].

Thus, the systems and methods of Nawata are not structurally or functionally equivalent to Applicant’s claimed systems and methods; the secondary reference, Ohmi is cited only for teaching certain response times of valves and therefore fails to cure the deficiencies noted for Nawata.

(ii) Motivation is Lacking

Not only does the combination of Nawata and Ohmi not teach or suggest all of the elements of independent claims 1 and 21, as described above, but proper motivation does not exist to modify the references in the way suggested by the Examiner.

The Nawata reference teaches away from the systems of claims 1 and 21 by teaching that all mass calculations for mass delivery by “pulse shots” are performed only after the second cutoff valve has closed and after the mass from the “gas filling capacity” has exited (been exhausted from) the Nawata system.

On this point, the referenced Declaration of W. Randolph Clark, one of the present inventors, is submitted as rebuttal evidence to traverse the Examiner's rejection of the claims under 35 U.S.C. § 103. Mr. Clark's Declaration explains the criticality of the claimed limitation of calculating mass flow "when the outlet valve is open" and the superior results provided relative to the teachings/invention of Nawata. The beliefs of those skilled in the art are relevant as rebuttal evidence countering an assertion of obviousness. See, e.g., *In re Oelrich*, 579 F.2d 86, 91-92, 198 USPQ 210, 214 (CCPA 1978) (Expert opinions regarding the level of skill in the art were probative of the Nonobviousness of the claimed invention.).

Because of the foregoing reasons, the combination of Ashley and Nawata is an improper basis for a rejection of claims 1-8, and 21-26 under 35 U.S.C. § 103(a), and the rejection of claims 1-8 and 21-26 under 35 U.S.C. § 103(a) should be removed accordingly.

Response to Arguments

Concerning item 6 of the Office Action, the Examiner stated that "In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references" citing *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981) and *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant notes that the Federal Circuit has held that "It is improper to combine references where the references teach away from their combination." See *In re Grasselli*, 713 F.2d 731, 743, 218 USPQ 769, 779 (Fed. Cir. 1983) *In re Grasselli* was decided well after the CCPA holding of *In re Keller*, so obviously, the holdings of *In re Grasselli* and *In re Keller* are consonant with each other.

Further, as stated by the Supreme Court, "[a] rationale to support a conclusion that a claim would have been obvious is that all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods **with no change in their respective functions**, and the combination would have yielded nothing more than predictable results

to one of ordinary skill in the art. KSR International Co. v. Teleflex Inc., 550 U.S. ___, ___, 82 USPQ2d 1385, 1395 (2007) (“KSR”) [Emphasis added].

Counter to the holding of the Supreme Court in KSR, the Examiner has changed the function of the controller and valves of Nawata in formulating the rejection (which changed function is contraindicated by the teachings of Nawata itself). Further, controlling authority from the Court of Claims and Patent Appeals (“CCPA”) and Federal Circuit supports the patentability of the claims of the subject application.

For example, in In re Wesslau (1965), the CCPA stated that “it is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art.” (In re Wesslau, 353 F.2d 238, 147 USPQ 391 (CCPA 1965). Moreover, in Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc. (1986), the Federal Circuit held that a single sentence in a prior art reference should not be taken out of context and relied upon with the benefit of hindsight to show obviousness. Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc., 796 F.2d 443, 230 USPQ 416 (Fed. Cir. 1986), *cert. denied*, 484 U.S. 823 (1987). Instead, the reference should be considered as a whole, and portions arguing against or teaching away from the claimed invention must be considered. *Id.*

Thus, it is respectfully submitted that the rejection of claims 1-11 and 21-30 under 35 U.S.C. § 103(a) should be withdrawn.

Conclusion

In view of the amendments and remarks submitted herein, Applicant respectfully submits that all of the pending claims in the subject application are in condition for allowance, and respectfully request a Notice of Allowance for the application.

If a telephone conference will expedite prosecution of the application, the Examiner is invited to telephone the undersigned.

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Reply to Office Action of 17 September 2008

Authorization is hereby given to charge our deposit account, No. 50-1133, for any fees required for the prosecution of the subject application.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP

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